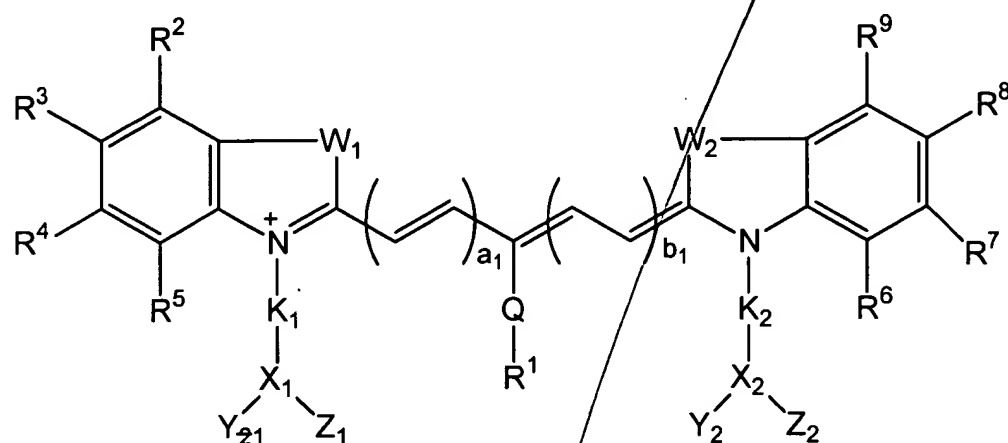


IN THE CLAIMS

Amend claims 1 and 8 as follows:

1. (CURRENTLY AMENDED) A compound having the cyanine dye bioconjugate formula 1



wherein W_1 and W_2 may be the same or different and are selected from the group consisting of $-CR^{10}R^{11}$, $-O-$, $-NR^{12}$, $-S-$, and $-Se$; Y_1 , Y_2 , Z_1 , and Z_2 are independently selected from the group consisting of hydrogen, tumor-specific agents, phototherapy agents, $-CONH-Bm$, $-NHCO-Bm$, $-(CH_2)_a-CONH-Bm$, $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Bm$, $-(CH_2)_a-NHCO-Bm$, $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Bm$, $-(CH_2)_a-N(R^{12})-(CH_2)_b-CONH-Bm$, $-(CH_2)_a-N(R^{12})-(CH_2)_c-NHCO-Bm$, $-(CH_2)_a-N(R^{12})-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Bm$, $-(CH_2)_a-N(R^{12})-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Bm$, $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-(CH_2)_a-$

CONH-Bm , $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-(\text{CH}_2)_a-\text{NHCO-Bm}$, $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_d-\text{CONH-Bm}$, $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_d-\text{NHCO-Bm}$, $-\text{CONH-Dm}$, $-\text{NHCO-Dm}$, $-(\text{CH}_2)_a-\text{CONH-Dm}$, $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{CONH-Dm}$, $-(\text{CH}_2)_a-\text{NHCO-Dm}$, $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{NHCO-Dm}$, $-(\text{CH}_2)_a-\text{N}(\text{R}^{12})-(\text{CH}_2)_b-\text{CONH-Dm}$, $-(\text{CH}_2)_a-\text{N}(\text{R}^{12})-(\text{CH}_2)_c-\text{NHCO-Dm}$, $-(\text{CH}_2)_a-\text{N}(\text{R}^{12})-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{CONH-Dm}$, $-(\text{CH}_2)_a-\text{N}(\text{R}^{12})-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{NHCO-Dm}$, $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-(\text{CH}_2)_a-\text{CONH-Dm}$, $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-(\text{CH}_2)_a-\text{NHCO-Dm}$, $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_d-\text{CONH-Dm}$, $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{N}(\text{R}^{12})-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_d-\text{NHCO-Dm}$, $-(\text{CH}_2)_a-\text{N}(\text{R}^{12})\text{R}^{13}$, and $-\text{CH}_2(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2\text{N}(\text{R}^{12})\text{R}^{13}$; K_1 and K_2 are independently selected from the group consisting of $\text{C}_1\text{-C}_{30}$ alkyl, $\text{C}_5\text{-C}_{30}$ aryl, $\text{C}_1\text{-C}_{30}$ alkoxy, $\text{C}_1\text{-C}_{30}$ polyalkoxyalkyl, $\text{C}_1\text{-C}_{30}$ polyhydroxyalkyl, $\text{C}_5\text{-C}_{30}$ polyhydroxyaryl, $\text{C}_1\text{-C}_{30}$ aminoalkyl, saccharides, peptides, $-\text{CH}_2(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-$, $-(\text{CH}_2)_a-\text{CO}-$, $-(\text{CH}_2)_a-\text{CONH}-$, $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{CONH}-$, $-(\text{CH}_2)_a-\text{NHCO}-$, $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{NHCO}-$, $-(\text{CH}_2)_a-\text{O}-$, and $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CO}-$; X_1 and X_2 are single bonds, or are independently selected from the group consisting of nitrogen, saccharides, $-\text{CR}^{14}-$, $-\text{CR}^{14}\text{R}^{15}$, $-\text{NR}^{16}\text{R}^{17}$; $\text{C}_5\text{-C}_{30}$ aryl; Q is a single bond or is selected from the group consisting of $-\text{O}-$, $-\text{S}-$, $-\text{Se}-$, and $-\text{NR}^{18}$; a_1 and b_1 independently vary from 0 to 5; R^1 to R^{13} , and R^{18} are independently selected from the group consisting of hydrogen, $\text{C}_1\text{-C}_{10}$ alkyl, $\text{C}_5\text{-C}_{20}$ aryl, $\text{C}_1\text{-C}_{10}$ alkoxy, $\text{C}_1\text{-C}_{10}$ polyalkoxyalkyl, $\text{C}_1\text{-C}_{20}$ polyhydroxyalkyl, $\text{C}_5\text{-C}_{20}$ polyhydroxyaryl, $\text{C}_1\text{-C}_{10}$ aminoalkyl, cyano, nitro, halogens, saccharides, peptides, $-\text{CH}_2(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{OH}$, $-(\text{CH}_2)_a-\text{CO}_2\text{H}$, $-(\text{CH}_2)_a-\text{CONH-Bm}$, $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{CONH-Bm}$, $-(\text{CH}_2)_a-\text{NHCO-Bm}$, $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CH}_2-\text{NHCO-Bm}$, $-(\text{CH}_2)_a-\text{OH}$ and $-\text{CH}_2-(\text{CH}_2\text{OCH}_2)_b-\text{CO}_2\text{H}$; R^{14} to R^{17} are independently selected from the group

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consisting of hydrogen, C₁-C₁₀ alkyl, C₅-C₂₀ aryl, C₁-C₁₀ alkoxy, C₁-C₁₀ polyalkoxyalkyl, C₁-C₂₀ polyhydroxyalkyl, C₅-C₂₀ polyhydroxyaryl, C₁-C₁₀ aminoalkyl, saccharides, peptides, -CH₂(CH₂OCH₂)_b-CH₂-, -(CH₂)_a-CO-, -(CH₂)_a-CONH-, -CH₂-(CH₂OCH₂)_b-CH₂-CONH-, -(CH₂)_a-NHCO-, -CH₂-(CH₂OCH₂)_b-CH₂-NHCO-, -(CH₂)_a-O-, and -CH₂-(CH₂OCH₂)_b-CO-; Bm and Dm are independently selected from the group consisting of bioactive peptides, proteins, cells, antibodies, antibody fragments, saccharides, glycopeptides, peptidomimetics, drugs, drug mimics, hormones, metal chelating agents, radioactive or nonradioactive metal complexes, echogenic agents, photoactive molecules, and phototherapy agents; a and c independently vary from 1 to 20; b and d independently vary from 1 to 100.

2. (ORIGINAL) The compound of claim 1 wherein W₁ and W₂ are independently selected from the group consisting of -C(CH₃)₂-, -C((CH₂)_aOH)CH₃-, -C((CH₂)_aOH)₂-, -C((CH₂)_aCO₂H)CH₃-, -C((CH₂)_aCO₂H)₂-, -C((CH₂)_aNH₂)CH₃-, -C((CH₂)_aNH₂)₂-, -C((CH₂)_aNR¹²R¹³)₂-, -NR¹²-, and -S-; Y₁ and Y₂ are selected from the group consisting of hydrogen, tumor-specific agents, -CONH-Bm, -NHCO-Bm, -(CH₂)_a-CONH-Bm, -CH₂-(CH₂OCH₂)_b-CH₂-CONH-Bm, -(CH₂)_a-NHCO-Bm, -CH₂-(CH₂OCH₂)_b-CH₂-NHCO-Bm, -(CH₂)_a-NR¹²R¹³-, and -CH₂(CH₂OCH₂)_b-CH₂NR¹²R¹³; Z₁ and Z₂ are independently selected from the group consisting of hydrogen, phototherapy agents, -CONH-Dm, -NHCO-Dm, -(CH₂)_a-CONH-Dm, -CH₂-(CH₂OCH₂)_b-CH₂-CONH-Dm, -(CH₂)_a-NHCO-Dm, -CH₂-(CH₂OCH₂)_b-CH₂-NHCO-Dm, -(CH₂)_a-NR¹²R¹³-, and -CH₂(CH₂OCH₂)_b-CH₂NR¹²R¹³; K₁ and K₂ are independently selected from the group consisting of C₁-C₁₀ alkyl, C₅-C₂₀ aryl, C₁-C₂₀ alkoxy, C₁-C₂₀ aminoalkyl, -(CH₂)_a-CO-, -(CH₂)_a-CONH-, -CH₂-(CH₂OCH₂)_b-

CH₂-CONH-, -(CH₂)_a-NHCO-, -CH₂-(CH₂OCH₂)_b-CH₂-NHCO-, and -CH₂-(CH₂OCH₂)_b-CO-; X₁ and X₂ are single bonds, or are independently selected from the group consisting of nitrogen, -CR¹⁴-, -CR¹⁴R¹⁵, and -NR¹⁶R¹⁷; Q is a single bond or is selected from the group consisting of -O-, -S-, and -NR¹⁸; a₁ and b₁ independently vary from 0 to 3; Bm is selected from the group consisting of bioactive peptides containing 2 to 30 amino acid units, proteins, antibody fragments, mono- and oligosaccharides; Dm is selected from the group consisting of photosensitizers, photoactive molecules, and phototherapy agents; a and c independently vary from 1 to 10; b and d independently vary from 1 to 30.

3. (ORIGINAL) The compound of claim 2 wherein each W₁, and W₂ is -C(CH₃)₂; each K₁ and K₂ is -(CH₂)₄CO-; each Q, X₁ and X₂ is a single bond; each R¹ to R⁹, Y₁ and Z₁ is H; Y₂ is a tumor-specific agent; and Z₂ is a phototherapy agent.

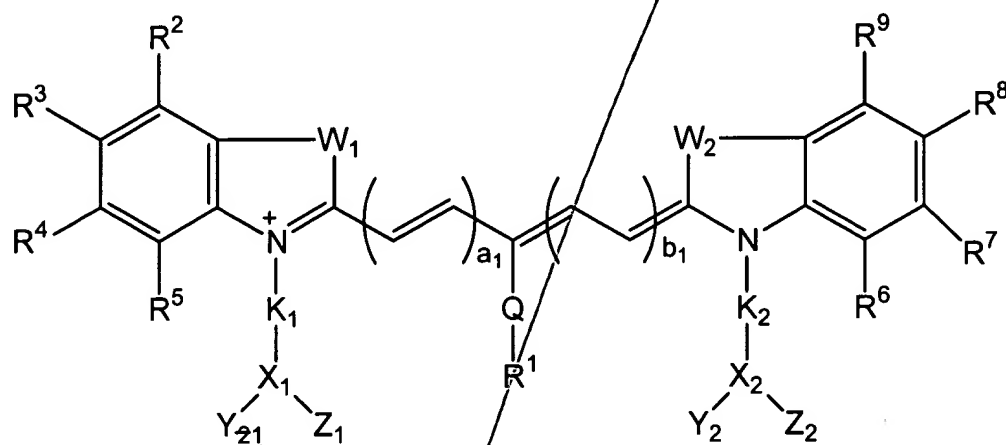
4. (ORIGINAL) The compound according to claim 3 wherein the said tumor-specific agent is a bioactive peptide containing 2 to 30 amino acid units.

5. (ORIGINAL) The compound according to claim 4 wherein the said tumor-specific agent is octreotate and bombesin (7-14).

6. (ORIGINAL) The compound according to claim 3 wherein the said phototherapy agent is a photosensitizer.

7. (ORIGINAL) The compound according to claim 6 wherein the said photosensitizer is 2-[1-hexyloxyethyl]-2-devinylpyropheophorbide-a.

8. (CURRENTLY AMENDED) A method for performing a diagnostic and therapeutic procedure comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate of Formula 1



wherein W_1 and W_2 may be the same or different and are selected from the group consisting of $-CR^{10}R^{11}$, $-O-$, $-NR^{12}$, $-S-$, and $-Se$; Y_1 , Y_2 , Z_1 , and Z_2 are independently selected from the group consisting of hydrogen, tumor-specific agents, phototherapy agents, $-CONH-Bm$, $-NHCO-Bm$, $-(CH_2)_a-CONH-Bm$, $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Bm$, $-(CH_2)_a-NHCO-Bm$, $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Bm$, $-(CH_2)_a-N(R^{12})-(CH_2)_b-CONH-Bm$,

$-(CH_2)_a-N(R^{12})-(CH_2)_c-NHCO-Bm$, $-(CH_2)_a-N(R^{12})-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Bm$,
 $-(CH_2)_a-N(R^{12})-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Bm$, $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-(CH_2)_a-$
 $CONH-Bm$, $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-(CH_2)_a-NHCO-Bm$, $-CH_2-(CH_2OCH_2)_b-CH_2-$
 $N(R^{12})-CH_2-(CH_2OCH_2)_d-CONH-Bm$, $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-CH_2-(CH_2OCH_2)_d-$
 $NHCO-Bm$, $-CONH-Dm$, $-NHCO-Dm$, $-(CH_2)_a-CONH-Dm$, $-CH_2-(CH_2OCH_2)_b-CH_2-$
 $CONH-Dm$, $-(CH_2)_a-NHCO-Dm$, $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Dm$, $-(CH_2)_a-N(R^{12})-$
 $(CH_2)_b-CONH-Dm$, $-(CH_2)_a-N(R^{12})-(CH_2)_c-NHCO-Dm$, $-(CH_2)_a-N(R^{12})-CH_2-(CH_2OCH_2)_b-$
 $CH_2-CONH-Dm$, $-(CH_2)_a-N(R^{12})-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Dm$, $-CH_2-(CH_2OCH_2)_b-$
 $CH_2-N(R^{12})-(CH_2)_a-CONH-Dm$, $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-(CH_2)_a-NHCO-Dm$, $-CH_2-$
 $(CH_2OCH_2)_b-CH_2-N(R^{12})-CH_2-(CH_2OCH_2)_d-CONH-Dm$, $-CH_2-(CH_2OCH_2)_b-CH_2-N(R^{12})-$
 $CH_2-(CH_2OCH_2)_d-NHCO-Dm$, $-(CH_2)_a-N R^{12}R^{13}$, and $-CH_2(CH_2OCH_2)_b-CH_2N R^{12}R^{13}$; K_1
and K_2 are independently selected from the group consisting of C_1-C_{30} alkyl, C_5-C_{30} aryl,
 C_1-C_{30} alkoxy, C_1-C_{30} polyalkoxyalkyl, C_1-C_{30} polyhydroxyalkyl, C_5-C_{30} polyhydroxyaryl,
 C_1-C_{30} aminoalkyl, saccharides, peptides, $-CH_2(CH_2OCH_2)_b-CH_2-$, $-(CH_2)_a-CO-$, $-(CH_2)_a-$
 $CONH$, $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-$, $-(CH_2)_a-NHCO-$, $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-$,
 $-(CH_2)_a-O-$, and $-CH_2-(CH_2OCH_2)_b-CO-$; X_1 and X_2 are single bonds, or are
independently selected from the group consisting of nitrogen, saccharides, $-CR^{14}-$,
 $-CR^{14}R^{15}$, $-NR^{16}R^{17}$; C_5-C_{30} aryl; Q is a single bond or is selected from the group
consisting of $-O-$, $-S-$, $-Se-$, and $-NR^{18}$; a_1 and b_1 independently vary from 0 to 5; R^1 to
 R^{13} , and R^{18} are independently selected from the group consisting of hydrogen, C_1-C_{10}
alkyl, C_5-C_{20} aryl, C_1-C_{10} alkoxy, C_1-C_{10} polyalkoxyalkyl, C_1-C_{20} polyhydroxyalkyl, C_5-C_{20}
polyhydroxyaryl, C_1-C_{10} aminoalkyl, cyano, nitro, halogens, saccharide, peptides,
 $-CH_2(CH_2OCH_2)_b-CH_2-OH$, $-(CH_2)_a-CO_2H$, $-(CH_2)_a-CONH-Bm$, $-CH_2-(CH_2OCH_2)_b-CH_2-$

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CONH-Bm, $-(CH_2)_a-NHCO-Bm$, $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Bm$, $-(CH_2)_a-OH$ and $-CH_2-(CH_2OCH_2)_b-CO_2H$; R^{14} to R^{17} are independently selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_5-C_{20} aryl, C_1-C_{10} alkoxy, C_1-C_{10} polyalkoxyalkyl, C_1-C_{20} polyhydroxyalkyl, C_5-C_{20} polyhydroxyaryl, C_1-C_{10} aminoalkyl, saccharides, peptides, $-CH_2(CH_2OCH_2)_b-CH_2-$, $-(CH_2)_a-CO-$, $-(CH_2)_a-CONH-$, $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-$, $-(CH_2)_a-NHCO-$, $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-$, $-(CH_2)_a-O-$, and $-CH_2-(CH_2OCH_2)_b-CO-$; Bm and Dm are independently selected from the group consisting of bioactive peptides, proteins, cells, antibodies, antibody fragments, saccharides, glycopeptides, peptidomimetics, drugs, drug mimics, hormones, metal chelating agents, radioactive or nonradioactive metal complexes, echogenic agents, photoactive molecules, and phototherapy agents; a and c independently vary from 1 to 20; b and d independently vary from 1 to 100; and thereafter performing said procedure.

9. (ORIGINAL) The method for performing the diagnostic and therapeutic procedure of claim 8 comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate wherein W_1 and W_2 are independently selected from the group consisting of $-C(CH_3)_2$, $-C((CH_2)_aOH)CH_3$, $-C((CH_2)_aOH)_2$, $-C((CH_2)_aCO_2H)CH_3$, $-C((CH_2)_aCO_2H)_2$, $-C((CH_2)_aNH_2)CH_3$, $-C((CH_2)_aNH_2)_2$, $-C((CH_2)_aNR^{12}R^{13})_2$, $-NR^{12}$, and $-S-$; Y_1 and Y_2 are selected from the group consisting of hydrogen, tumor-specific agents, $-CONH-Bm$, $-NHCO-Bm$, $-(CH_2)_a-CONH-Bm$, $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Bm$, $-(CH_2)_a-NHCO-Bm$, $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Bm$, $-(CH_2)_a-NR^{12}R^{13}$, and $-CH_2(CH_2OCH_2)_b-CH_2NR^{12}R^{13}$; Z_1 and Z_2 are independently

selected from the group consisting of hydrogen, phototherapy agents, -CONH-Dm, -NHCO-Dm, $-(CH_2)_a-CONH-Dm$, $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-Dm$, $-(CH_2)_a-NHCO-Dm$, $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-Dm$, $-(CH_2)_a-NR^{12}R^{13}$, and $-CH_2(CH_2OCH_2)_b-CH_2NR^{12}R^{13}$; K_1 and K_2 are independently selected from the group consisting of C_1-C_{10} alkyl, C_5-C_{20} aryl, C_1-C_{20} alkoxy, C_1-C_{20} aminoalkyl, $-(CH_2)_a-CO-$, $-(CH_2)_a-CONH-$, $-CH_2-(CH_2OCH_2)_b-CH_2-CONH-$, $-(CH_2)_a-NHCO-$, $-CH_2-(CH_2OCH_2)_b-CH_2-NHCO-$, and $-CH_2-(CH_2OCH_2)_b-CO-$; X_1 and X_2 are single bonds, or are independently selected from the group consisting of nitrogen, $-CR^{14}-$, $-CR^{14}R^{15}$, and $-NR^{16}R^{17}$; Q is a single bond or is selected from the group consisting of $-O-$, $-S-$, and $-NR^{18}$; a_1 and b_1 independently vary from 0 to 3; Bm is selected from the group consisting of bioactive peptides containing 2 to 30 amino acid units, proteins, antibody fragments, mono- and oligosaccharides; Dm is selected from the group consisting of photosensitizers, photoactive molecules, and phototherapy agents; a and c independently vary from 1 to 10; b and d independently vary from 1 to 30.

10. (ORIGINAL) The method for performing the diagnostic and therapeutic procedure of claim 9 comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate wherein each W_1 and W_2 is $-C(CH_3)_2$; each K_1 and K_2 is $-(CH_2)_4CO-$; each Q , X_1 and X_2 is a single bond; each R^1 to R^9 , Y_1 and Z_1 is H ; Y_2 is a tumor-specific agent; and Z_2 is a phototherapy agent.

11. (ORIGINAL) The method for performing the diagnostic and therapeutic procedure of claim 10 comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate wherein the said tumor-specific agent is a bioactive peptide containing 2 to 30 amino acid units.

12. (ORIGINAL) The method for performing the diagnostic and therapeutic procedure of claim 11 comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate wherein the said tumor-specific agent is octreotate and bombesin (7-14).

13. (ORIGINAL) The method for performing the diagnostic and therapeutic procedure of claim 10 comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate wherein the said phototherapy agent is a photosensitizer.

14. (ORIGINAL) The method for performing the diagnostic and therapeutic procedure of claim 13 comprising administering to an individual an effective amount of the composition of cyanine dye bioconjugate wherein the said photosensitizer is 2-[1-hexyloxyethyl]-2-devinylpyropheophorbide-a.

15. (ORIGINAL) The method of claim 8 wherein said procedure utilizes light of wavelength in the region of 300-1300 nm.

16. (ORIGINAL) The method of claim 8 wherein the diagnostic procedure is optical tomography.

17. (ORIGINAL) The method of claim 8 wherein said diagnostic procedure is fluorescence endoscopy.

18. (ORIGINAL) The method of claim 8 wherein said procedure further comprises a step of imaging and therapy wherein said imaging and therapy is selected from the group consisting of absorption, light scattering, photoacoustic and sonofluorescence technique.

19. (ORIGINAL) The method of claim 8 wherein said procedure is for diagnosing and treating atherosclerotic plaques and blood clots.

20. (ORIGINAL) The method of claim 8 wherein said procedure comprises administering localized therapy.

21. (ORIGINAL) The method of claim 8 wherein said therapeutic procedure comprises photodynamic therapy.

22. (ORIGINAL) The method of claim 8 wherein said therapeutic procedure comprises laser assisted guided surgery (LAGS) for the detection and treatment of micrometastases.